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# ***Future Deployment and Distribution Assessment (FDDA)***

***MORS Symposium***

***26 January 2011***



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# Agenda

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- ***FDDA Background***
- ***Phase 1 – Review***
- ***Phase 2 – Assessment Procedure***
- ***Insights***
- ***FDDA Way Ahead***





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## ***FDDA Definition***

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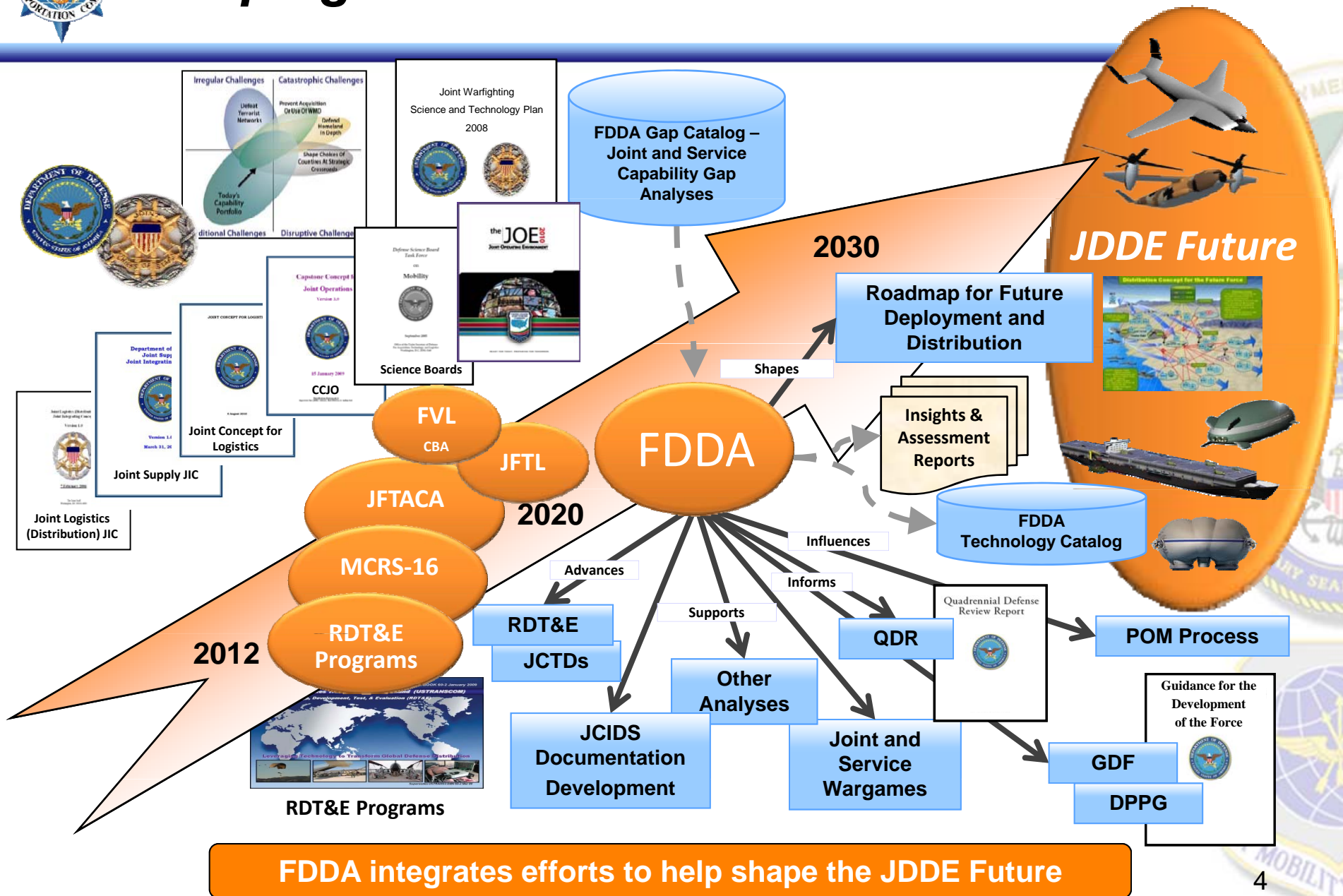
***A perennial research and analysis effort intended to assess and catalog needed deployment and distribution capabilities and technologies of interest in the extended planning period and beyond (2017+)***





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# Shaping the JDDE Future





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# FDDA Objectives

- ***Synthesize and vet future capability gaps in the Joint Deployment and Distribution Enterprise (JDDE)***
- ***Identify S&T initiatives that may fill gaps or improve deployment and distribution capabilities – beyond the POM***
- ***Evaluate the utility of the technologies in support of transforming forces and operational concepts***
- ***Provide a forum and a process to shape S&T efforts and enhance JDDE capability***



UNITED STATES TRANSPORTATION COMMAND  
658 SCOTT DRIVE  
SCOTT AIR FORCE BASE, ILLINOIS 62226-4367

30 July 2009

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE  
(ACQUISITION, TECHNOLOGY AND LOGISTICS)  
VICE CHAIRMAN, JOINT CHIEFS OF STAFF

FROM: TCCC

SUBJECT: Shaping the Joint Deployment and Distribution Enterprise (JDDE) Future

1. The United States Transportation Command (USTRANSCOM) and our JDDE partners are continually exploring ways to enhance our future support to the warfighters. Our Joint Distribution Process Analysis Center (JDPAC) is working on several initiatives to help define the JDDE future. One of JDPAC's first major undertakings was to co-lead, with OSD (PA&E), the Mobility Capabilities and Requirements Study 2016 (MCRS-16). At the onset of MCRS-16, the desire for a future-oriented assessment surfaced. Now, with emerging insights from this study, the need for that future look is validated. A likely outcome of MCRS-16 is a recommendation to look at technologies to overcome shortfalls.

2. We have embarked on this effort, entitled The Future Deployment and Distribution Assessment (FDDA), which is focused on the extended planning period, 2017 and beyond. Its objectives are to catalog future capability gaps, identify Science and Technology (S&T) initiatives to address these gaps, and in so doing, provide a forum and a process to shape S&T efforts to enhance JDDE capabilities. FDDA will keep a focus on the Quadrennial Defense Review as it unfolds and use it to influence the roadmap for the JDDE future.

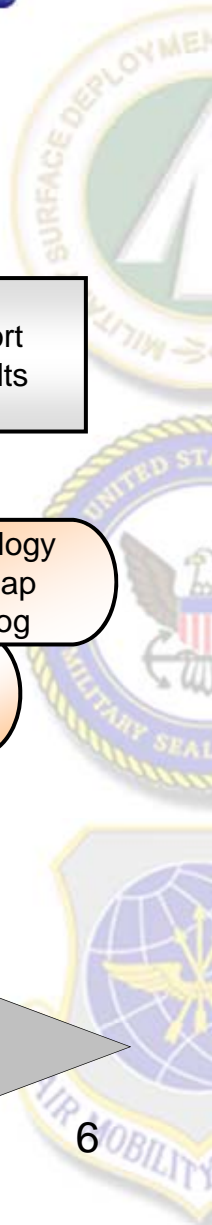
3. In coordination with the Services, combatant commands, and DOD staff, the FDDA Terms of Reference has been completed and the FDDA is underway. Periodically, during this assessment, we will apprise you of our progress and results. Collectively, the involvement of all stakeholders will ensure the right technologies are pursued for the JDDE future.

VR  
  
DUNCAN J. McNABB  
General, USAF  
Commander

USTRANSCOM Commander memo announced FDDA start and objectives



## Method







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# Shape and Inform

- **Community of Interest**

- **OSD**
- **Joint Staff**
- **Services**
- **COCOMs**
- **DLA**

- **Engagement**

- **Panel Meetings**
- **Terms of Reference – Jul 09**
- **Updates to TCCC – Jul 09, May 10, Jan 11**
- **Principals' Updates – Apr 10 and Jan 11**
- **Assessment Procedure – May 10**
- **Briefings / Conferences**

254 registered users

<https://FDDAHome.Imi.org>

- **Includes calendar, library, blog, and announcements to keep stakeholders informed**
- **Is open to all – password protected – with levels of permission**
- **Allows industry, academia, etc. to submit S&T initiatives**
- **Provides means for collaboration with stakeholders**

Continuing to engage the Community of Interest





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# Collect and Synthesize Capability Gaps

## Gap Sources

USA  
USMC  
USAF  
USEUCOM  
USJFCOM  
USSOUTHCOM  
USTRANSCOM  
DLA

And various source documents

## Gap Panel Members

USA TRADOC ARCIC  
USN N42  
USAF A5XC  
USAFRICOM DDOC  
USJFCOM J3/4  
USTRANSCOM J5/4  
JS J4  
DLA J-31

- Collected 120 capability gaps
- Collapsed to 60 gaps – eliminating duplicates and non-materiel solutions
- Convened Capability Gap Panel to review and rate synthesized gaps
- Deferred 37 capability gaps that did not require technology for resolution
- Prioritized remaining 23 gaps

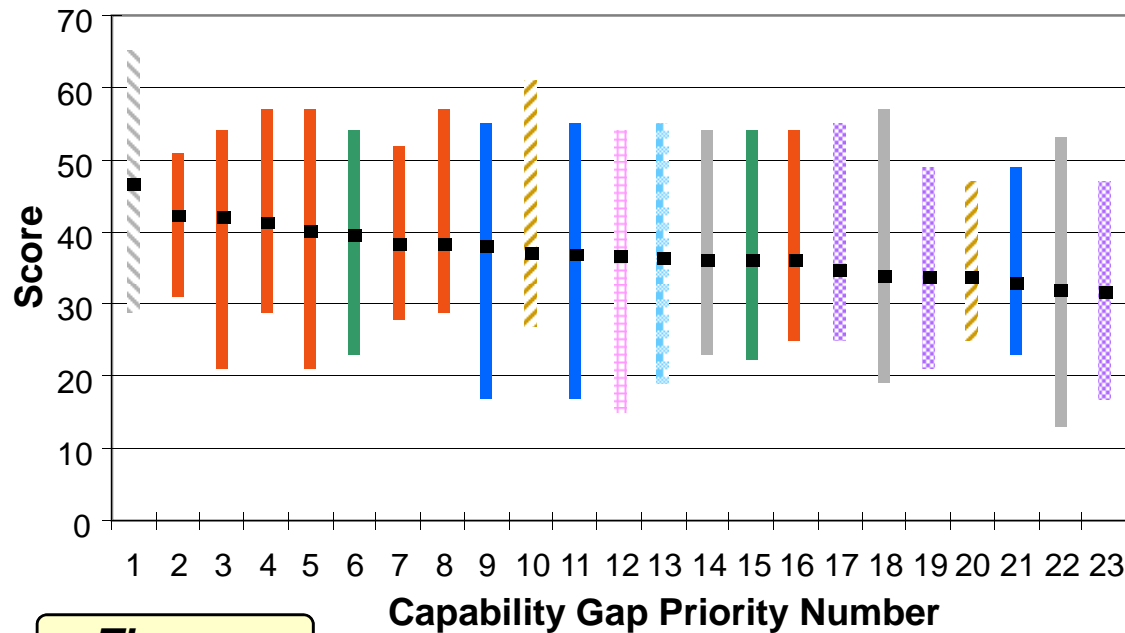
Source	Criteria	Weight	Score
JDDE Gap Management	Warfighter impact	4	1 to 5
	Joint impact	2	1 to 5
Senior Warfighter Forum	Capacity	1	0 to 5
	Economy	1	0 to 5
	Precision	1	0 to 5
	Reliability	1	0 to 5
	Survivability	1	0 to 5
	Velocity	1	0 to 5
	Visibility	1	0 to 5

Panel members provided valuable expertise – through a challenging process



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# Prioritized Capability Gaps



## Themes

Legend		Automated Technologies
		Austere Access / Speed
		Mounted Vertical Maneuver (MVM)
		Seabasing
		Packaging
		CBRNE
		Demand Reduction
		Infrastructure
		Predictive Logistics

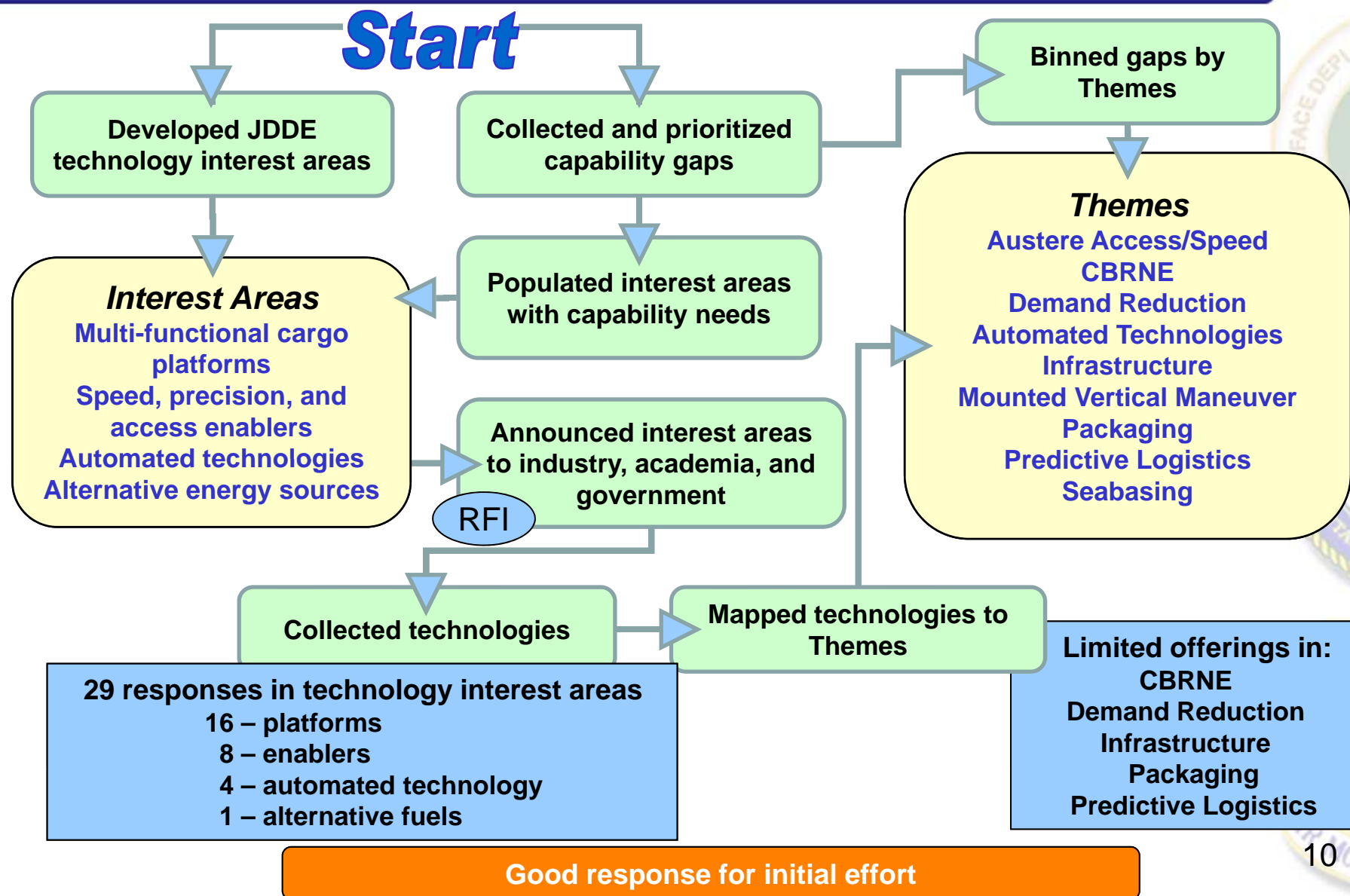
- **Automated systems were top pick for USA, USAF, and USJFCOM – many solutions are working**
- **6 of 7 austere access / speed capability gaps in top 10**
- **“Rogue” MVM gap ranked highly**
- **All Seabasing gaps ranked highly by USA and DLA**
- **Packaging gap important to DLA and USTRANSCOM**

Address all – but focus on austere access, MVM, and Seabasing



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# Collect and Map S&T Initiatives





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# Select Technologies for Assessment

## Convened S&T panel

### S&T Panel Members

OSD DDR&E  
OSD Trans Policy  
USA ARCIC  
USMC MCCDC  
USAF A5XC and A8XC  
USNORTHCOM J47  
USPACOM J42  
USTRANSCOM J5/4  
AMC A8XC and ST  
MSC N74  
SDDC ST  
DLA DDC  
AFMC AFRL / RBOT

- **Reviewed 29 offerings**
- **Provided leads on additional technologies**
- **Credited S&T initiatives – establishing the list of technologies for assessment**

## Crediting Plan

- Objective 1: Relevance of the proposed technology or initiative to the JDDE
  - Proposal addresses the most critical capability gaps in the JDDE
  - Proposal offers leap-ahead technology
  - Proposal offers a capability that does not readily exist
- Objective 2: Applicability of the technology or initiative to the JDDE S&T interest areas
  - Proposal applies to the JDDE S&T interest area(s)
  - Proposal includes measurable goals for the S&T interest areas or is otherwise relevant to the JDDE mission needs
- Objective 3: Technical merits of the candidate technology
  - Proposal is technically feasible (i.e., approach is appropriate and success seems likely)
  - Proposal has technical merit
  - Quality of the proposal
- Objective 4: Cost and cost realism
  - Potential for Return on Investment

### Objective Area Weights

1 = 5  
2 = 3  
3 = 3  
4 = 1

### Evaluation Scale

0 to 9

Great expertise represented in this panel – very helpful



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# Technologies Selected for Assessment

Technology Name	Technology Type
Blended Wing Body (BWB) Energy Efficient Transport	Air platform CTOL
A400M	Air platform CTOL
Advanced Tactical Transport Technology (AT3)	Air platform STOL
C-17 FE	Air platform STOL
Advanced Pulsejet (APJ) VTOL Aircraft	Air platform VTOL
Modular Unmanned VTOL Resource (MUVR)	Air platform VTOL UAS
Mono Tiltrotor (MTR)	Air platform VTOL UAS
Optimum Speed Tiltrotor (OST)	Air platform VTOL
Aeroscraft Cargo Platform Air Vehicle	Airship
Hybrid Thermal Airship (HTA)	Airship
Lockheed Martin (LM) Hybrid Aircraft	Airship
Surface Effect Flying Vehicle (SEFV)	Air/surface platform
Sea Train	Surface platform
Dual Use Trimaran	Surface platform
Heavy Air Lift Support Ship (HALSS)	Surface platform

15 of 29 proposals accepted for assessment







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## ***Identified Technologies with Potential Impact***

<b>Technology Name</b>	<b>Technology Type</b>
Advanced Landing Gear for Improvised Landing Zones	Air enabler
Automated Aerial Refueling	Air enabler
Autonomous Approach and Landing	Air enabler
Helicopter Sling Load for Joint Precision Airdrop System (JPADS)	Air enabler
Next Generation JPADS Guidance, Navigation, & Control	Air enabler
Opportune Landing Site (OLS) Detection	Air enabler
Joint Cargo Unmanned Aircraft System Slingload	Air platform
Unmanned Air-Launched Cargo Glider; Autonomous Navigating Glider Logistics System (ANGLS)	Air platform
Container At Sea Transfer System/Large Vessel Interface Lift On/Lift Off (LVI Lo/Lo)	Surface enabler
Enhanced Air Skid Shipboard Testing/Shipboard Selective Access & Retrieval System (SSARS)	Surface enabler
Joint Enabled Theater Access-Sea Ports of Debarkation (JETA-SPOD)	Surface enabler
Joint Universal Causeway Interface Module (JUCIM)	Surface enabler
Joint Recovery and Distribution System (JRaDS)	Surface platform
Vertical Armored Seabase Assault and Support Ship (VASAS)	Surface platform

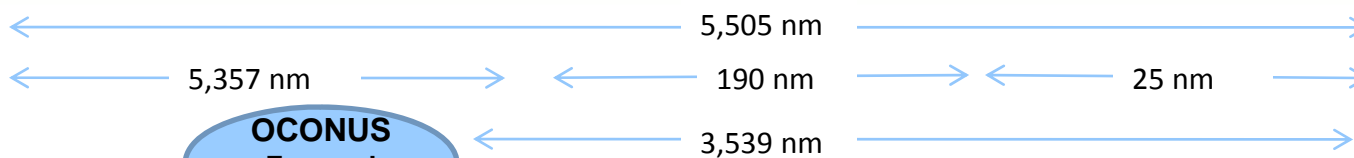
These will be considered in our assessment – as appropriate





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# Lebanon – Uncertain Environment (Cases 1-5)



CONUS

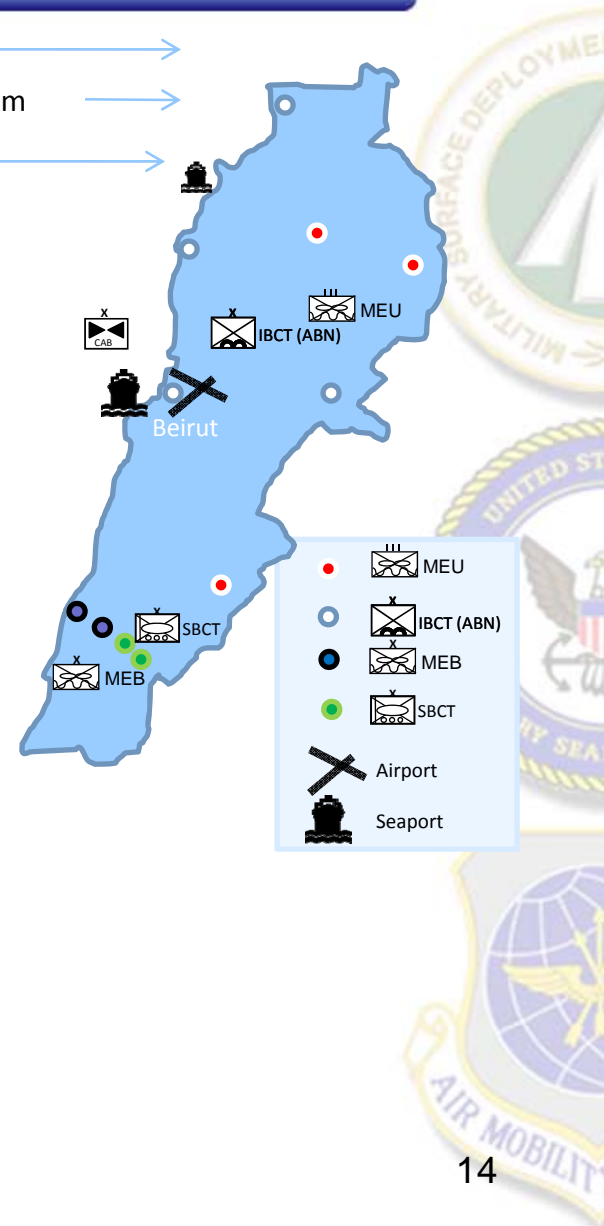
OCONUS  
Forward  
Deployed

Intermediate  
Staging /  
Advance Base

Sea  
Base

MPSRON

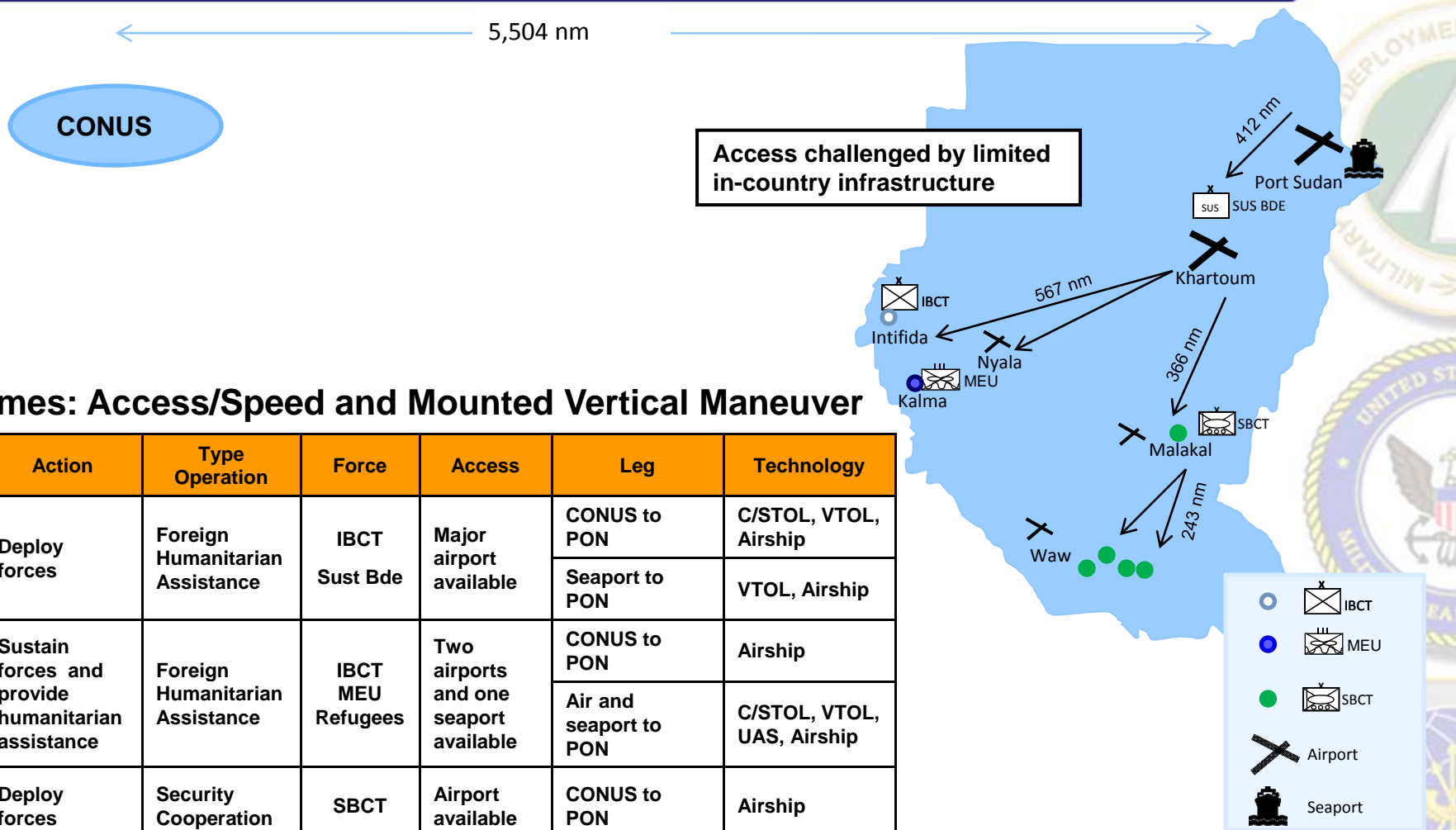
Case	Action	Force	Type Operation	Access	Leg	Technologies
1-3	Deploy and sustain forces	CAB IBCT	Peace Enforcement	No airports initially; one small seaport	ISB to PON	Airship
2-5	Deploy and sustain forces ashore from the sea base	MEU IBCT	Secure WMD	No airports; one small seaport	Sea base to PON	VTOL, UAV, Airship
4	Deploy and sustain forces	SBCT MEB	Peace Enforcement	Airport available; seaport degraded	Forward location to PON	Surface





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# Sudan – Uncertain Environment (Cases 6-9)



## Themes: Access/Speed and Mounted Vertical Maneuver

Case	Action	Type Operation	Force	Access	Leg	Technology
6	Deploy forces	Foreign Humanitarian Assistance	IBCT Sust Bde	Major airport available	CONUS to PON	C/STOL, VTOL, Airship
					Seaport to PON	VTOL, Airship
7	Sustain forces and provide humanitarian assistance	Foreign Humanitarian Assistance	IBCT MEU Refugees	Two airports and one seaport available	CONUS to PON	Airship
					Air and seaport to PON	C/STOL, VTOL, UAS, Airship
8	Deploy forces	Security Cooperation	SBCT	Airport available	CONUS to PON	Airship
9	Maneuver and sustain forces	Recovery of Sensitive Item	SBCT	Airfield available	Airfield to PON	C/STOL, VTOL, Airship

And a MVM excursion



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# Baseline Panel

*Approached Baseline Panel with themes, baseline assumptions, and potential assessment vignettes*

## Baseline Panel Members

OSD CAPE  
OSD NA  
OSD Policy  
USA ARCIC  
USN N42  
USMC HQMC and MCCDC  
USEUCOM J4  
USJFCOM J38 and J59  
USPACOM J4  
USSOUTHCOM ES  
USTRANSCOM J5/4  
JS J4  
AMC A8 and A9  
DLA J31  
AMRDEC AATD

- ***Determined that unclassified vignettes – loosely based on the DPS and representative of the QDR – were sufficient***
- ***Reviewed and validated assumptions***
- ***Selected two locations***



**Members provided a unique blend of experience and insights**



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# Assessment Procedure

## 1. Research

- Are there technologies for under-represented themes?

## 2. Qualitative assessment – Initial

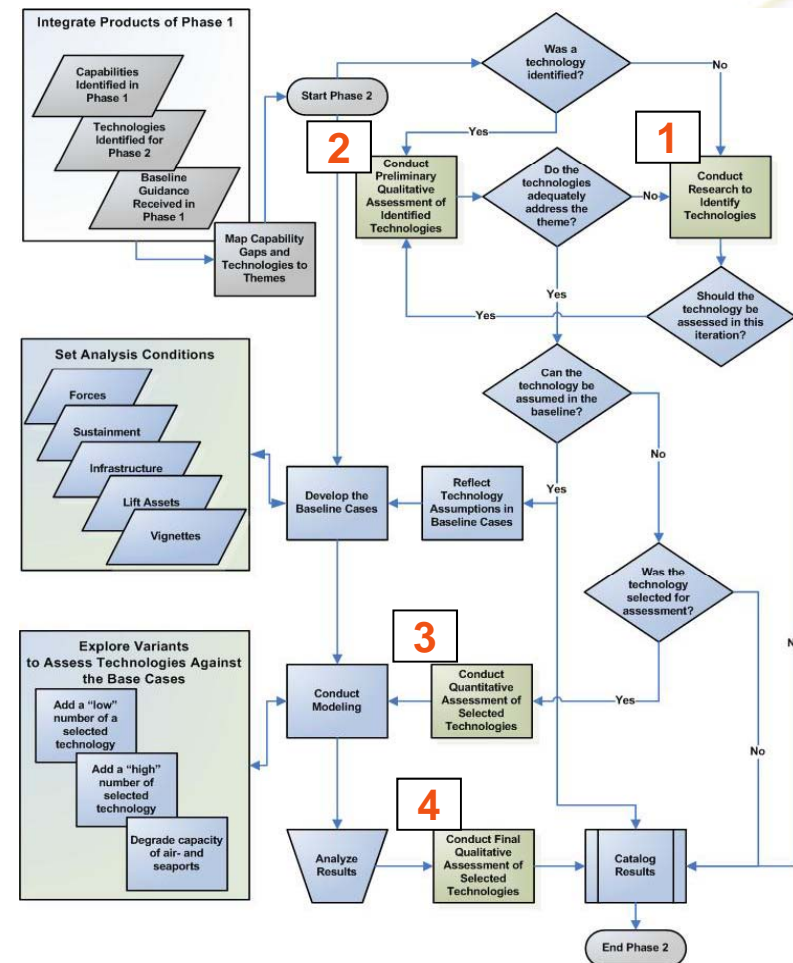
- Is it in the program of record?
- What is the concept of employment?
- How does it satisfy future operational concepts?
- What other efforts are examining this?
- Does it have technical/scientific merit?

## 3. Quantitative assessment

- Does the technology improve or reduce force closure time, sustainment delivery time, and / or exposure to hostile threats? By how much?

## 4. Qualitative assessment – Final

- What is the anticipated return on investment?
- Does the technology decrease the complexity of deployment / distribution?
- What are the human aspects of employment?
- How will it deploy to the operational area?
- What operational circumstances make one technology preferable to another?



A sampling of questions included in the Assessment Procedure



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# Tools and Model Set Up

## Tools Used

- Joint Flow and Analysis System for Transportation (JFAST)
- Enhanced Logistics Intra-theater Support Tools (ELIST)
- Transportability Analysis Report Generator (TARGET)
- Airfield Suitability and Restrictions Report (ASRR)
- Opportune Landing Sight : Multi-Spectral (OLS-MS)
- Excel (Quantitative Analysis) Tools

- **Legacy Lift Assets**
  - *Numbers based on Service projections and CAPE input*
- **Future Lift Platforms**
  - *Numbers based on capacity to carry similar payloads*
- **Cost elements for legacy and future platforms**
  - *Fuel, crew, parts, and maintenance – provided by Services and vendors and adjusted by assessment team*

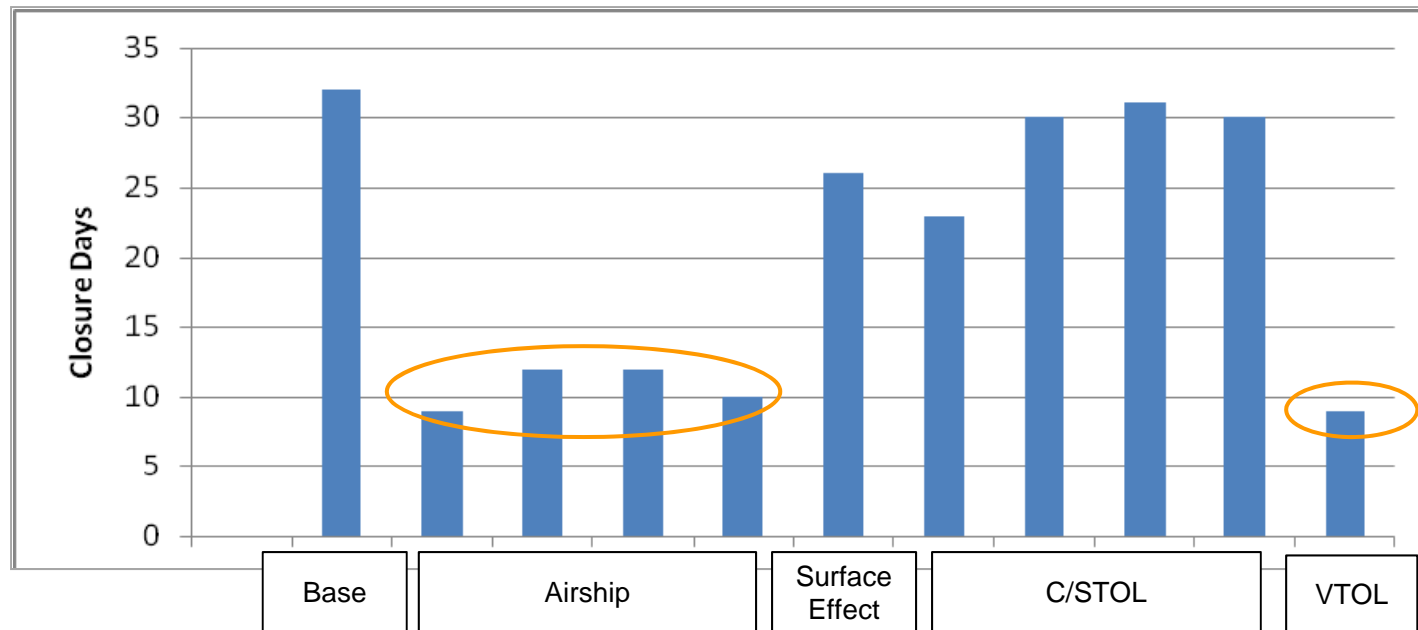




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## Sample Quantitative Results

### Force Closure – Sudan – Case 6



***Measuring sustainment rate, truck use, cost efficiency and fuel efficiency – as well as force closure – in the quantitative assessment***







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# Insights

- ***The FDDA community of interest is positive about FDDA***
- ***Many complementary efforts are ongoing but information is compartmentalized***
- ***Concepts (e.g., Seabasing, MVM) are amorphous targets and not universally recognized***
- ***Future capability gap collection is a challenge***
- ***S&T solicitation in future iterations should go to a wider audience – beyond the RFI***
- ***Some technologies are in conceptual stage and are difficult to model***





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# ***FDDA Way Ahead***

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- ***Integration Plan***

- ***Codify FDDA as JDDE Future Concept Assessment Methodology***
  - ***Brief to Log FCB (10 Feb), Log JCB (late Feb) and JROC (mid-Mar)***
  - ***Output: Joint Requirements Oversight Council Memo (JROCM)***
- ***Apply Results / Insert into Other Analysis and S&T Efforts***

- ***FDDA Next***

- ***Guided by Community of Interest Collaboration and Feedback***
- ***Synchronized to Other Mobility Analysis and Strategic Guidance***
- ***Estimated Start in 3Qtr FY11***





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*Questions?*

